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(54) Security means for telephone distribution frames

(57) A lockable security cover 1 is provided to prevent or hinder access to a telephone distribution frame 7.

As shown in Figure 1 the substantially rectangular cover 1 is shaped to fit over the frame 7 which has tabs 8 on which connector blocks for telephone wiring are mounted; the side portions 5 of the cover may allow access for the wires. Securement means 9, 12 has rods 12 firmly secured to frame base by screws through apertures 18 in a member 75 at the base of the frame.

The lower end of the rods 12 prevents access to the screws holding these bars. One or more key-operated locking bars 2 having a terminal stepped tongue 70 can slide beneath transverse bar 9 and into a recess 69 formed in an abutment member 20 inside the cover; the bar is then lockable against sliding movement by (a) locks 3 in the top 4 of the cover so as to prevent access to the frame.

Different arrangements (Fig. 4 to 9) are shown for securing the rods 12 to the frame. A single locking bar can rotate to fit under hoops fitted over the frame (Figs. 10-11).

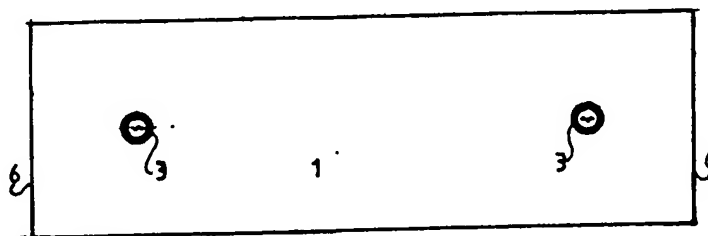


FIG. 1.

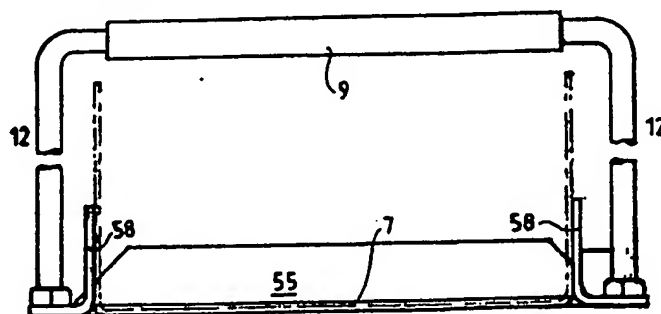


FIG. 4.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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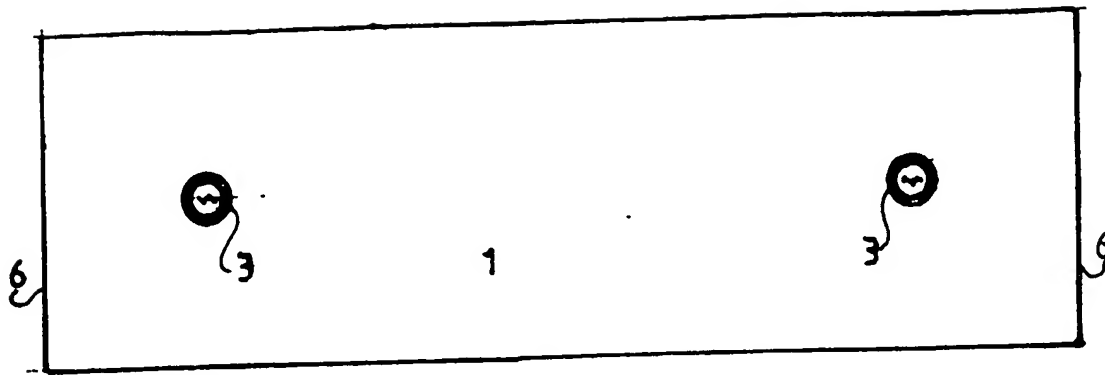


FIG. 1.

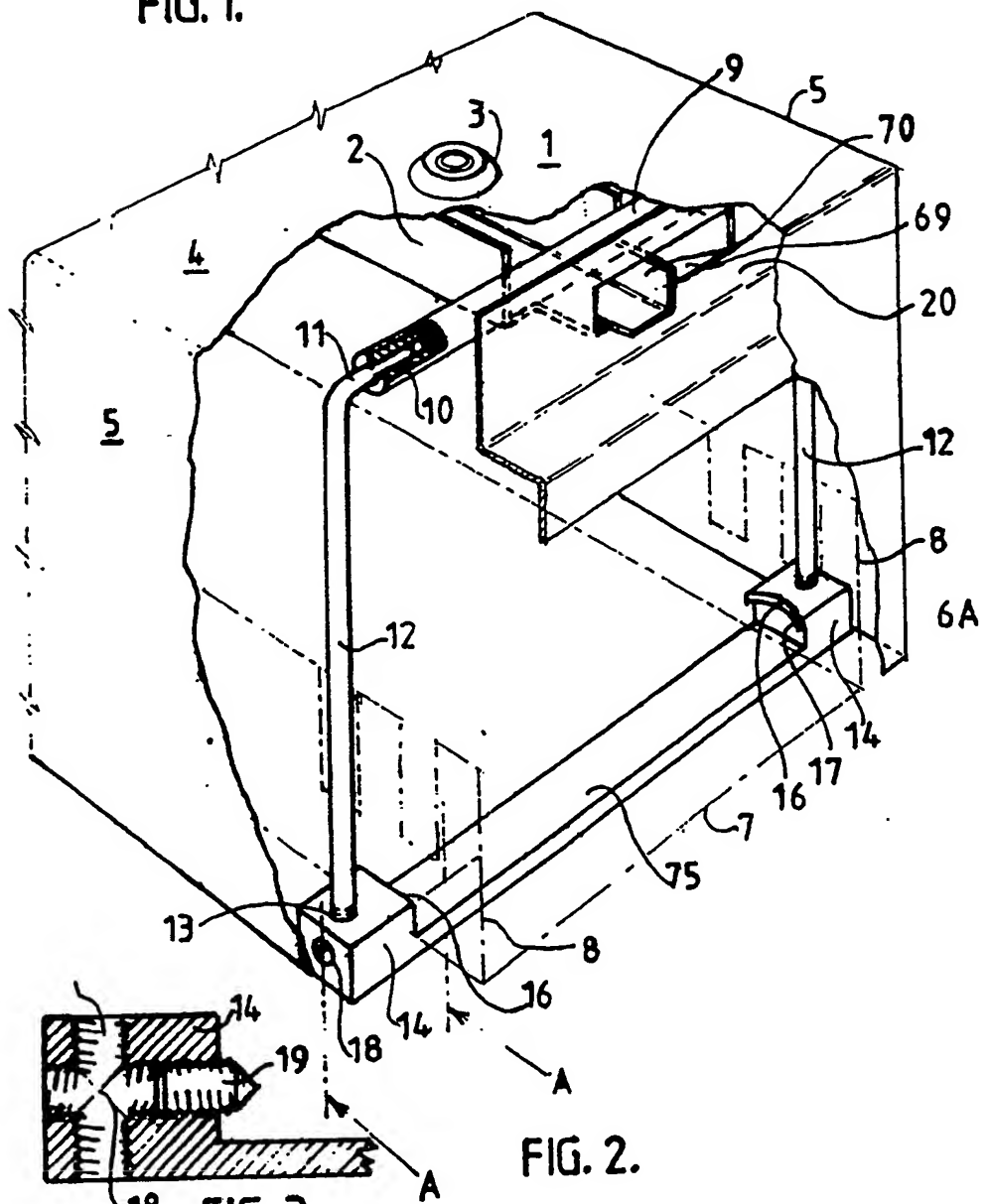


FIG. 2.

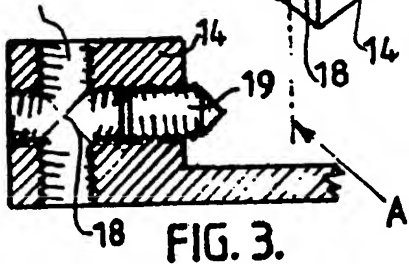


FIG. 3.

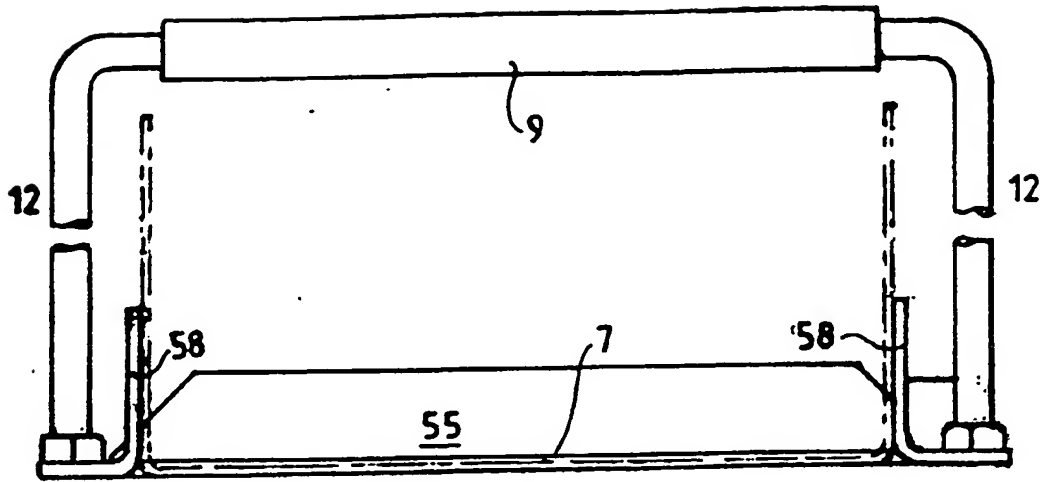


FIG. 4.

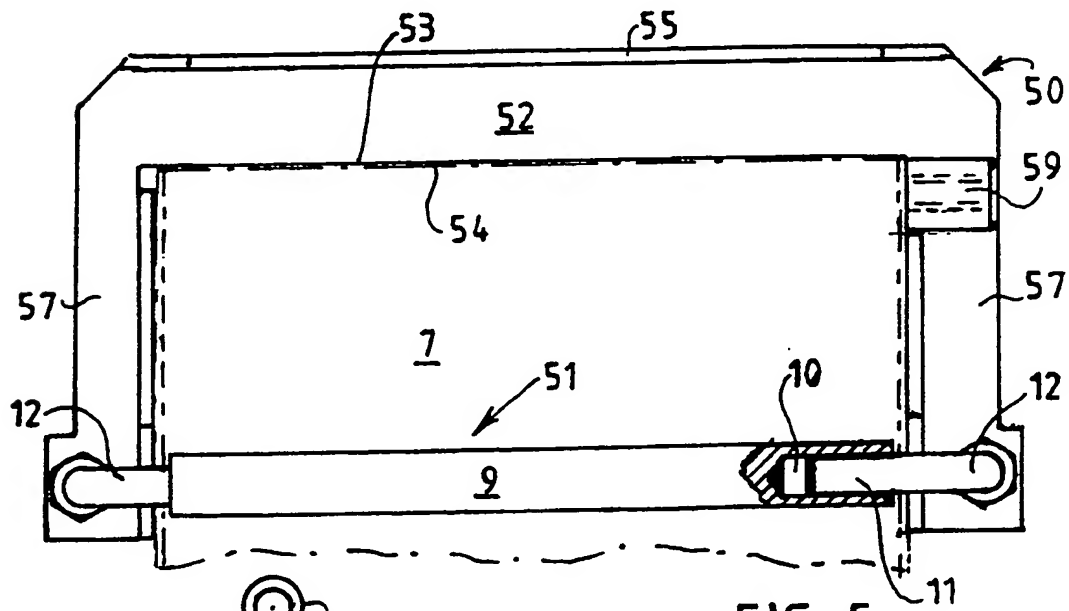


FIG. 5.

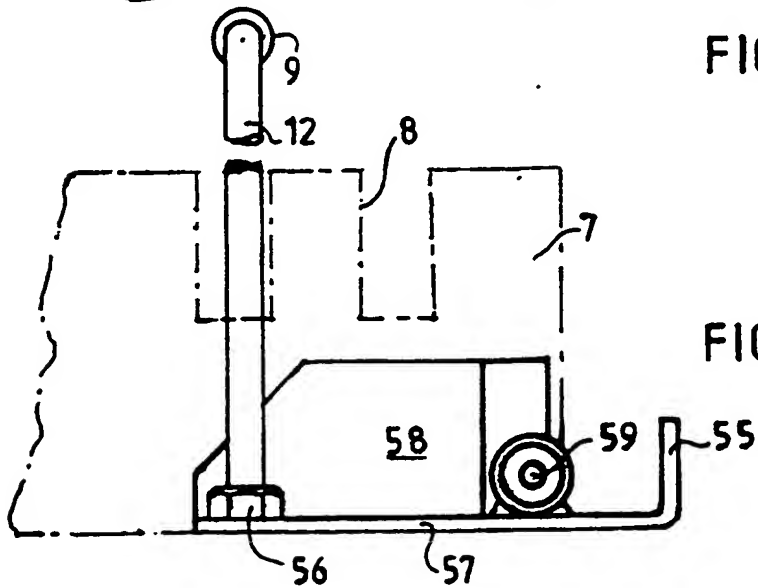
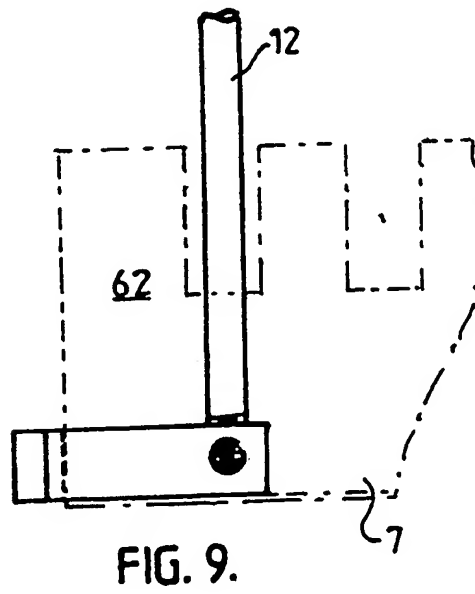
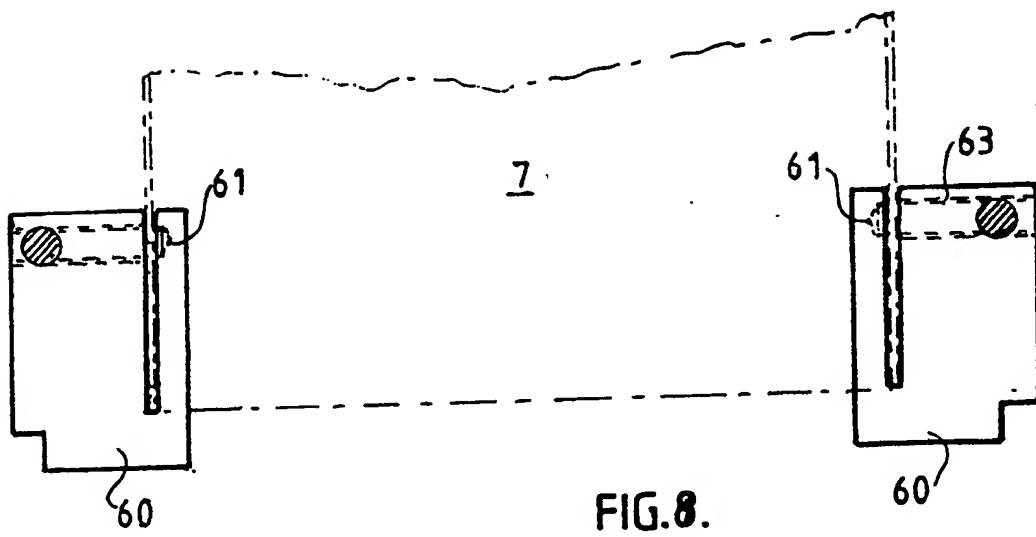
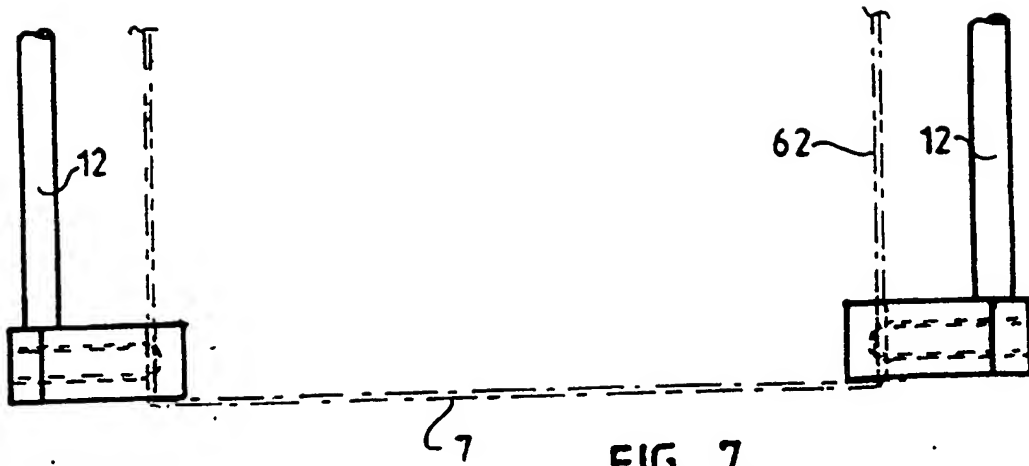
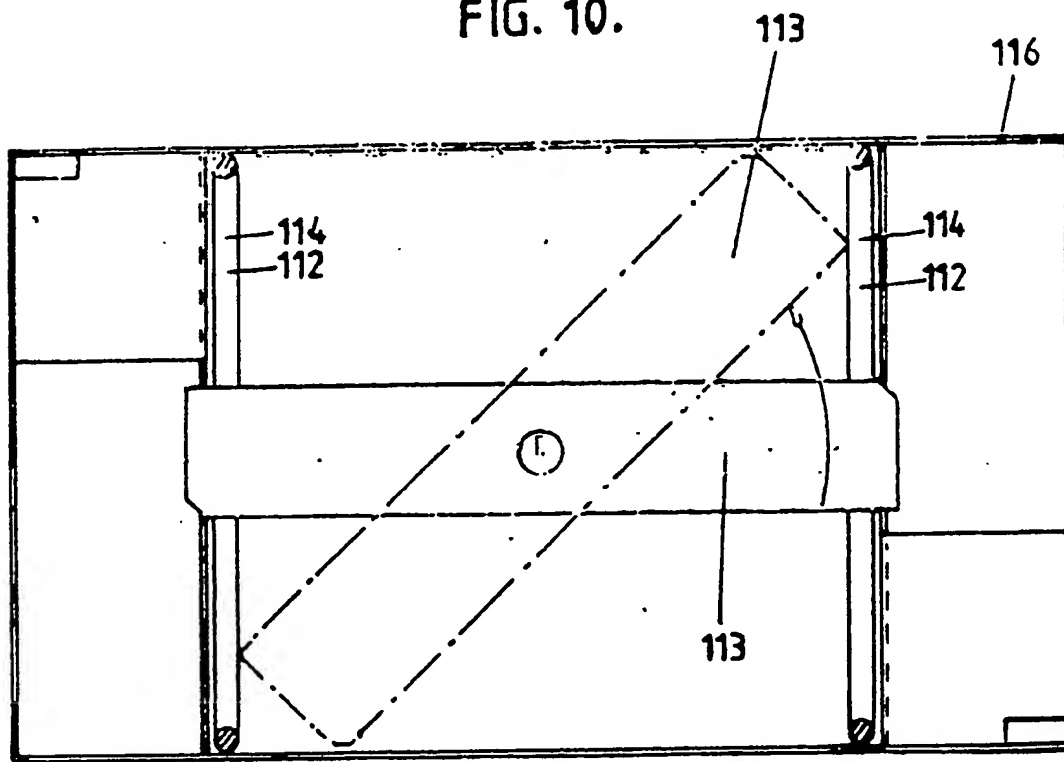
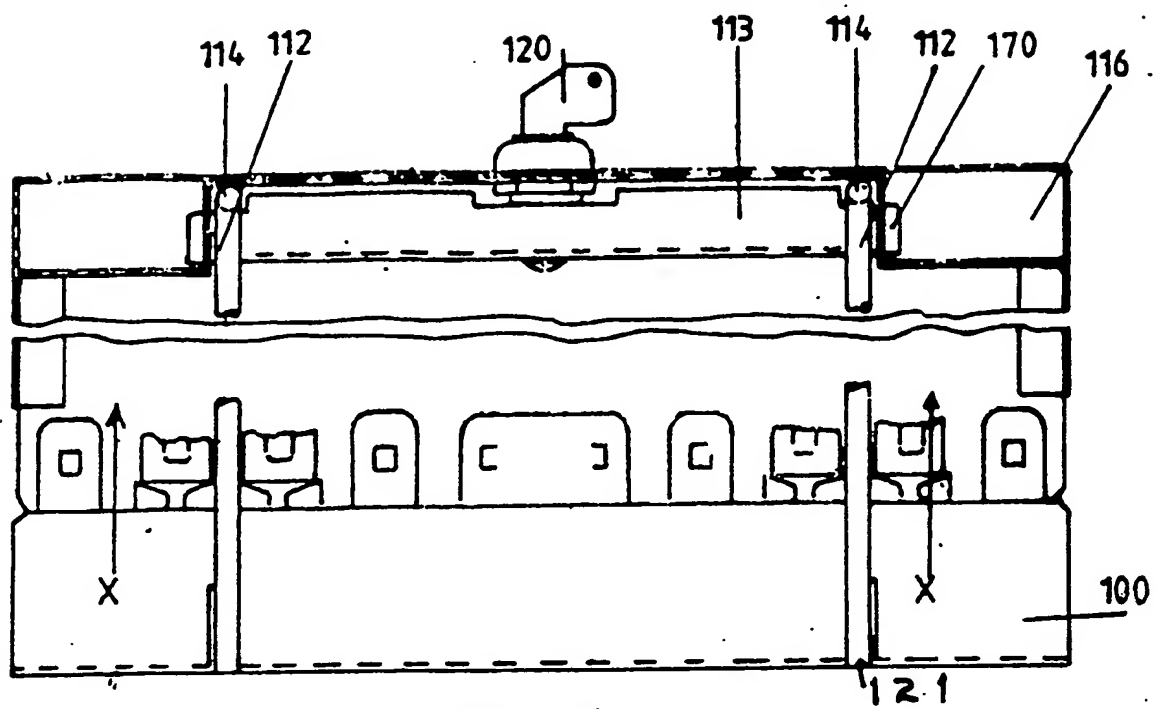


FIG. 6.





Security Means for Telephone Distribution Frames

This invention relates to a security means for a telephone distribution frame.

In telecommunication systems where highly sensitive voice and data transmissions can be misused for fraudulent and espionage purposes, there is an increasing need for illegal access to telephone distribution frames to be prevented or at least obviated.

Generally however, there is a need to separate and secure access to trunk, extension or data pairs to prevent tampering and possible damage or infiltration into commercial installations or fire and security systems.

In a typical distribution frame, the elongate substantially channel-shaped member will have a plurality of opposed tongues or tabs between which the connector blocks for the telephone wiring are mounted.

It is an object of the present invention to provide a cover for such a distribution frame which will at least hinder unauthorised access to the connector blocks and other components of the system mounted in or on the distribution frame.

Further objects of this invention in its various embodiments will become apparent from the following description.

According to one aspect of the present invention, there is provided a security means for a distribution frame comprising a cover means securable over said distribution frame in use, to restrict unauthorised access thereto, characterised in that a securement means is securable at or adjacent a base portion of the distribution frame to extend transversely over an upper portion of the distribution frame, and a cover means having locking means is operable to be lockingly engaged with a transverse portion of said securement means to secure said cover means over said distribution frame to restrict unauthorised access thereto.

The invention will be further described by reference to the preferred embodiments shown in the accompanying drawings, wherein:

- 15 Figure 1: Shows diagrammatically a plan view of a cover assembly for use with the security means of the present invention;
- Figure 2: Shows diagrammatically an end, partly cut-away, view of the security means of the present invention when positioned over a distribution frame;
- 20

- Figure 3: Shows a cross sectional view along arrows A-A of the mounting and locking portion of the transverse bar of Figure 2;
- 5      Figure 4: Shows diagrammatically an end view of a security means, in position, according to a further embodiment of the invention;
- Figure 5: Shows a plan view of the security means of Figure 4;
- 10      Figure 6: Shows a side view of the security means of Figures 4 and 5;
- Figures 7, 8 and 9: Show respectively, end, plan and side views of a still further embodiment of the invention;
- 15      Figure 10: Shows diagrammatically a side cross-sectional view of the security means of a further embodiment of the present invention when positioned over a distribution frame; and
- 20      Figure 11: Shows a view of security means of Figure 10 from the direction of arrows X-X.

The present invention as herein described proposes various embodiments which in a speedy and effective manner provide for security of communications

25      distribution frames against unauthorised access and in a way whereby any attempt at unauthorised access is circumvented or at least rendered very difficult.



Referring firstly to Figures 1, 2 and 3 of the accompanying drawings, a security cover 1 is shown by way of example in Figure 1 having a pair of key-operated locking bars 2 (only one being shown in Figure 2), controlled by key-operated locks 3. The locking bar 2 is shown with a stepped tongue 70, which can slide beneath a transverse bar 9 and into a recess 69 provided within an internal abutment member 20. It is to be appreciated that an internal abutment member 20 will be provided at each end 6 of the cover 1 to be engagable by a respective tongue 70 in the embodiment shown. However, for a cover 1 of shorter length, a single key-operated lock 3 may control a single locking bar 2 having a pair of tongues 70 at opposite ends to engage within respective abutment members 20. It is seen that by the containment of the tongue 70 within the enclosed recess 69, unauthorised access to the tongue 70 to try and disengage same is substantially prevented.

It is envisaged that a micro switch or the like can be provided at or adjacent the abutment block 20, so that it is operable by the rotation of the locking bar 2, to record and/or signal, whether locally or remotely, that the locking bar 2 has been operated.

It is also pointed out that by providing the block section abutment member 20 at each end of the cover 1, its wrong positioning relative to the transverse bar 9

will be indicated because if improperly positioned the box section 20 will tend to engage with the transverse bar 9 causing the cover 1 to sit-up showing that a misalignment is present. In Figures 1 and 2, the cover 1 is shown as being a substantially rectangular or square housing with a upper portion 4, side portions 5 and end portion 6. The cover 1 thus defines an enclosure which is of a size commensurate with the size of the distribution frame 7 (shown in dotted lines in Figure 2) which is to be secured against unauthorised access.

The length of the cover 1 and the positioning of its end portion 6 preferably provides, as illustrated diagrammatically in Figure 2, that the length of the cover 1 is an increment of the distribution frame 7 module pitch. Thus, as shown, with this arrangement the end portion 6 can descend from the top portion 4 to a point slightly above the wire entry point of the connector modules fitted to the distribution frame and in at least substantial coincidence with the junction between adjacent connector blocks. Thus, the end portions 6 of adjacent security covers 1 can be butted together along the length of the distribution frame and allow the incremental securement of add-on distribution frames 7 to an existing distribution frame 7.

A cavity or recess 6A is shown for the end portion 6 to allow for the extension of the distribution frame 7

to the next adjacent distribution frame 7. The side portions 5 of the cover 1 are also shown terminating slightly above the bottom of the distribution frame 7 to allow for access of the wires into the connector blocks beneath the side portions 5.

As shown particularly in Figure 2, the distribution frame 7 is of the usual type having a plurality, commonly 10 or multiples of 10, of upright tabs 8 on which the connector blocks for the telephone wiring are mounted.

In the position shown in Figure 2, the locking bar 2 has its tongue 70 in its locked position engaged underneath the transverse bar 9 which itself extends transversely underneath the top portion 4 of the housing 1 and above the distribution frame 7.

The securement means in this embodiment comprises the transverse bar 9 which is shown in the form of a rod having apertures 10 at each end into which a respective in-turned end 11 of respective support rods 12 can be inserted.

The opposite ends of the support rods 12 are shown provided with a respective threads 13 screwed into a threaded 15 provided in an upstanding mounting portion 14 of a transverse support bar 75. The support bar 75, as seen particularly in Figure 2, extends beneath the distribution frame 7 so that respective edges 16 of the support bar 75, which edges 16 being associated with the

mounting portions 14, can be clamped in position against the side edges of the distribution frame 7.

As shown in Figure 2 particularly, the edges 16 may be divided with an arcuate edge so as to provide a pair of teeth 17 which can bite into the edge of the distribution frame 7 to enhance a secured engagement therewith. Alternatively, other shaped edges 16 such as an outwardly stepped edge, or a straight edge, may be provided as appropriate.

As seen particularly in Figure 3, the left hand mounting portion 14, is provided with a through aperture 18. As shown, this aperture 18, is threaded and accommodates a pointed screw 19 which can be screwed into the aperture 18 to engage against the outer surface of the left hand (in Figure 2) side portion of the distribution frame 7. It is to be appreciated of course that any alternative locking arrangement for engaging the support bar 75 with the distribution frame 7 can be utilised.

Once the pointed screw or like 19 has been engaged to the desired extent against the side 8 of the distribution frame 7, the left hand support rod 12 can be threaded into the left hand aperture 15 and in doing so, the bottom end of the support rod 12 will be obstructing access to the screw or the like 19. Thus, disengagement of the support bar 75 from the distribution frame 7 will not be achievable unless and

until the support rod 12 has been unscrewed so as to reveal the head of the screw 19. An equivalent arrangement may be provided for the right hand mounting portion 14. Each of the support rods 12 suitably has an in-turned portion 11 so that with the in-turn portions 11 aligned, the transverse bar 9 can be fitted thereacross. The rods 12 may have some resilience or flexibility to facilitate them being forced apart to allow the insertion of the transverse member 9.

The support bar 75 is thus firmly secured to the distribution frame 7, the support bar 75 is also secured to the transverse bar 9 and the latter member can now be engaged by the locking bar 2 so that the cover 1 is secured in position over the distribution frame 7, preventing access thereto. Once the key has been removed, removal of the cover 1 without the key requires special equipment. In particular, even if access to the outside of the aperture 18 is obtained, access to the securing screw 19 is prevented by the end of the support rod 12.

Referring to Figures 4, 5 and 6, (corresponding reference numerals being used where appropriate) the base portion 50 of the securement means 51 is shown comprising a substantially "U" or "C" shaped member 52 with an edge 53 which can be positioned so as to abut against an outer edge 54 of the distribution frame

assembly 7. The member 52 is shown provided with an upstanding flange 55 serving to protect the assembly 51 from unauthorised interference, once the member 52 is in position.

5           The bottom ends of the member 12 are again illustrated as being threaded and engageable with nuts or the like 56 provided on the base portion 50 and in particular on side portions 57 thereof.

10           The side portions 57 are shown with upstanding flanged portions 58 which abut against respective side portions of the distribution frame 7. A threaded aperture 59 can accommodate a screw or the like (not shown) so as to secure the base portion 50 in position on the distribution frame 7. It is thus seen in this particular embodiment that there is no need for any  
15           space to be available underneath the distribution frame 7 for the purpose of the support bar (75) of the preceding figures extending thereacross. Instead, the securement means 51 of this embodiment of the invention  
20           can be merely fitted about the exposed ends of the distribution frame 7. Once again, a cover (1) (not shown) will be fitted onto the one or more transverse bars 9 ( only one being shown.) extending transversely over the distribution frame 7 and be locked in position  
25           thereover. The cover (1) once fitted, together with the flange 55, will restrict access to the locking member in aperture 59.

In a still further embodiment of the invention shown in Figures 7, 8 and 9, corresponding reference numerals are again used where appropriate. The base portion of the securement means of this embodiment is shown in the form of a pair of separate portions 60, each having a slot 61 therein extending partway along their respective lengths and able to accommodate the respective ends 62 of the side walls of the distribution frame 7. The support rods 12 may thus be screwed into threaded apertures provided in the respective base portion 60 and a pointed screw or the like (19) (not shown) can be screwed into the transverse threaded aperture 63 to engage against the outer surface of the respective end 62 of the distribution frame 7 as described previously with reference to Figure 3. A recess 64 is shown provided at the end of the threaded apertures 63 into which material of the distribution frame 7 can be deformed so as to trap the distribution frame 7. Once secured in this manner the support rod 12 can be secured in position and in doing so, will once again obstruct any unauthorized access to the heads of the screws or the like within the apertures 63.

This embodiment of the invention will again utilise a transverse member (9) and a locking bar (2) as described previously in securing a cover (1) (not shown) over the distribution frame 7 and preventing unauthorized access thereto.

In a further embodiment of the present invention

shown in Figures 10 and 11, a distribution frame is indicated generally at 100 with a pair of spaced apart hoops 120 adapted to be hooked behind the distribution frame 100 so as to surround it, the hoops 120 having in-  
turned ends 121 for that purpose. The hoops 120, may be  
of an integral design or alternatively, may have a  
separable transverse upper portion 140, such as  
described hereinbefore with reference to previous  
embodiments. In that instance the portions 140 would be  
removed from the hoops 120 to enable them to be located  
around the frame 100 and once that had been done the  
portions 140 would be connected into the hoops 120.

With the hoops 120 located in position so as to surround the frame 100, a security cover 160 can be positioned over the distribution frame 100 as illustrated in Figure 10. The cover 100 can as shown rest on the framework provided by the hoops 120 or a clearance may be provided to allow for equipment on or in the frame 100.

The underside of the security cover 160 is shown provided with a locking bar 180 which can be operated by means of a key 200 between a first position, shown in dotted lines in Figure 11, in which the cover 160 is free to be removed from the frame 100, and a second position (shown in solid lines in Figure 11) in which the ends of the locking bar 180 project under the portions 140 of the hoops 120 thereby preventing the cover 160 from being removed from the frame 100. The



free ends of the locking bar 180 are suitably rebated to form a tongue 170, to facilitate them engaging them under the hoops 120.

5 In a further embodiment to the invention, "U" or "C" shaped hoops 120 as described with reference to Figures 10 and 11 may be secured to a surface, for example a wall, to which the distribution frame 100 is attached so that the hoops 120 extend away from the wall and over the frame 100. The cover 150 can then be  
10 positioned over the hoops 120 and locked in position as previously described.

Where in the foregoing description reference has been made to specific components or integers of the invention having known equivalents then such equivalents  
15 are herein incorporated as if individually set forth.

Although this invention has been described by way of example and with reference to possible embodiments thereof it is to be understood that modifications or improvements may be made thereto without departing from  
20 the scope of the invention as defined in the appended claims.

CLAIMS

1. A security means for a distribution frame (7) comprising a cover means (1) securable over said distribution frame (7) in use, to restrict unauthorized access thereto characterised in that a securement means (9, 12, 120) is securable at or adjacent a base portion of the distribution frame (7) to extend transversely over an upper portion of the distribution frame (7), and a cover means having locking means (2, 180) is operable to be locking engaged with a transverse portion (9, 140) of said securement means to secure said cover means (1) over said distribution frame (7) to restrict unauthorized access thereto.
2. A security means as claimed in Claim 1 wherein said securement means (9, 12) is mounted on a transverse support member (75) which can extend beneath said distribution frame (7) and has mounting means (14) at opposite ends thereof, said mounting means (14) having inner faces (16) which abut against and grip respective side portions (8) of the distribution frame (7).
3. A security means as claimed in Claim 1 wherein said securement means (9, 12) is mounted on a transverse support member (5) having an inner edge (53) which can be positioned so as to abut against

an outer edge (54) of the distribution frame (7) side portions (57) of said member (5) extending alongside respective side portions (8) of the distribution frame (7) and having mounting means (56) at respective free ends thereof.

4. A security means as claimed in Claim 1 wherein said securement means (9, 12) is mounted on respective support members (60) which are adapted to accommodate a respect end (62) of the distribution frame (7).
5. A security means as claimed in any one of Claims 1 to 4 wherein said support member(s) (75, 50, 60) mounting means include(s) a locking means (19, 59, 63) to secure said support member(s) to said distribution frame (7).
6. A security means as claimed in Claim 5 wherein an end of said securement means (9, 12) when mounted on said support member(s) (75, 60) obstructs access to the locking means (19) to restrict unauthorised release of said locking means (19).
7. A security means as claimed in any one of Claims 1 to 6 wherein a locking member (2, 180) provided for said cover (1) is engageable with said transverse portion (9, 140) to restrict removal of said cover (1) from its position about said distribution frame (7).

8. A security means as claimed in any one of Claims 1 to 7 wherein said locking member (2, 180) is key operated (3) and has a tongue member (70, 170) extendable beneath said transverse portion (9, 140) into a recess (69) provided in an abutment member (20) provided for said cover (1).
9. A security means as claimed in Claim 8 wherein tongue (70) engages into a recess (69) provided in substantially hollow abutment member (20) provided for said cover (1).
10. A security means as claimed in any one of Claims 1 to 10 wherein said cover (1) includes a cavity or recess (6A) at its end portions (6) thereof to permit the butting together of multiple covers (1) to cover multiple distribution frames (7).
11. A security means substantially as herein described with reference to Figures 1 to 3, 4 to 6, 7 to 9 or 10 and 11 of the accompanying drawings.